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THE JOURNAL OF PHILOSOPHY

SUPERSTITION

TO one whose professional field of study includes the ways of life of the primitive or simple peoples of the world, exactly what is to be termed superstitious and superstition is a question of greater moment than it may seem to professional philosophers. A vague differentiation of the superstitious from the rational has for the most part availed, because all issues have been drawn in the universe of discourse of our own culture, and between credulous, ignorant belief and the reasoned thinking of the logically trained. In so far as the intellectual life of other cultures, particularly the primitive, have been drawn into discussion, there has been tacit agreement that unless rationalism can be shown to dominate them, these alien realms of discourse are superstition. Ethnologists as well as philosophers have assumed this attitude, partly, I think, because the ethnologists have uncritically carried the distinction, or lack of distinction, over into their subject-matter. Particularly have ethnological compilers and theorists, such as J. G. Frazer, construed the beliefs and practices of primitives as superstitution. Thus *Totemism and Exogamy* is subtitled: "a treatise on certain early forms of superstition and society."

"What is religion to you is superstition to me," represents the undiscriminating attitude toward superstition in its extreme form; it results in ignorant prejudice toward the beliefs of others, accompanied by an unwillingness to acquire requisite knowledge and understanding.

The account of superstition in Hastings' *Encyclopedia of Religion and Ethics* illustrates, I think, some of the difficulties which this undiscriminating use involves. Says Alice Gardner: "We group together as superstitions a number of beliefs, habits and fancies, tribal and individual, which we regard as not being founded on reasonable conceptions of the world and of human life, necessities and obligations."[1] What is such a "reasonable conception"? Who is to judge its reasonableness and by what standard?

Most minds employ as a standard of the "reasonable" the naturalistic or scientific view of the world. Thus all interpretations of nature which are "supernaturalistic," or better, "pre-naturalistic," are unreasonable. This seems to be the intent of the Gardner defini-

[1] Hastings' *Encyclopedia*, volume 12, p. 121.

tion, which therefore implies the proposition that all primitive cosmologies are superstitions.

But this attitude toward the reasonable is the overt expression of a deep-rooted bias of both philosopher and ethnologist.

"Every superstition is a little science, inspired by the desire to understand, to foresee or to control the real world."[2]

To the philosopher the important characteristic of superstitious thinking is that it does not yield true philosophy. The generous philosopher goes further, however, and admits, as Santayana does, the good intentions of the superstitious mind. There is a highway to true philosophy, which is rationalism, and superstition represents the first tentative grading of the roadbed through the wilderness.

Ethnologists have not only utilized the same loose meaning of superstition as philosophers, but many hold the same bias. An anthropologist who, in the light of his own personal field experience, critically reconsidered the basis of most ethnological interpretation of primitive customs, found the underlying hypothesis to be that "the beliefs of savage peoples are due to an attempt on the part of primitive man to explain to himself the phenomena of life and nature."[3]

Rationalism, as we know it, is conceived to have evolved from attempts to explain nature and the world, because man is curious. Primitive man is still in the earlier stage of human thinking, in which rationalism is crude and tentative, and superstition its halting product.

The proposition that all primitive belief arises from the attempt to explain nature can not be defended. Primitive religion as any other phase of any human culture is a historical product determined in its immediate form and character by a bewildering array of causes. Even in the special case of an individual utilizing part or all of the belief of his society as an explanation of nature, no facts as to origins are established. Actually, whatever tendency to attempt to explain nature may be in man, the explanation tendered must derive its essence from the culture into which a man is born and in which he lives. The French argument that the bent of the individual mind is determined by the "collective representation" of which he is part raises the same issue. This interrelation of a world view with the cultural configuration to which it belongs is the essential fact.

Santayana recognizes this essential when he states "what religion a man shall have is a historical accident, quite as much as what language he shall speak";[4] but I do not think he has carried

[2] G. Santayana, *Reason in Religion*, p. 22.
[3] A. R. Brown, *The Andaman Islanders*, p. 232.
[4] G. Santayana, *Reason in Religion*, p. 5.

out the full implication of his proposition. If a man's religion is basically fortuitous, how can he be said to be attempting rational explanation of the universe? By multiplying numbers and speaking of the religion of a human group the difficulty is not avoided. Nor is it surmounted by turning to conjectural origins, since this merely involves the same situation at a remoter past time.

The truth is that in our culture rationalism is the dominant mode of thinking. It is a cultural pattern among ourselves to ask for reasons and explanations. This pattern may or may not be characteristic of another cultural setting. Before the world view of any people be classed as tentative or halting rationalism, it must first be established that the rationalistic search for explanations is its cultural pattern. To a great extent of primitive cultures this can not be done.

II

The usefulness of a term is limited by the clarity of the distinction it involves. If all of primitive belief and custom is to be called superstition it would be better not to use the term at all, because in that case it functions merely to restate that we are speaking of primitive thought and life which is *all* superstitious, rather than of civilized thought and life which is *partly* non-superstitious or rational. On the other hand, if it be recognized that when the term is used, the speaker has a feeling of some valid reference to a characteristic quality of a belief, a custom, a rite, etc., which sets it off from the non-superstitious, a clearer definition is called for. The proposition "all primitive custom and belief is superstitious" is not self-evident; and the nature of both primitive custom and belief, and the nature of superstition, must be critically examined before they are conjoined.

The Murray Dictionary defines superstition in general as "religious belief or practice founded upon fear or ignorance"; and specifically, "an irrational religious belief or practice," or "an irrational religious system."

Let us consider first the specific definitions. These involve us in the meanings of rational and irrational. If a religious *system* can be called irrational, it follows that the term "irrational" does not exclude the possibility of system. To speak of a religious system implies at once that a complex of religious ideas and beliefs, practices, rites, and ceremonies are interrelated in some orderly way. Symmetry and arrangement are affirmed as characteristic of that religious complex. To my mind the presence of such characteristics implies also the presence and exercise of intellectual processes which are orderly, although not necessarily disciplined.

If irrational does not exclude the idea of system, it follows that

rational can not refer to and include only the idea of system; it has, in fact, a somewhat different reference. On the one hand, in its more limited meaning, it calls to mind the rationalism which dominates our own intellectual culture and which is bound up with logic. It implies in this sense that whatever is held to be rational has been arrived at by thinking which has proceeded within a universe of discourse defined by rules and principles previously laid down; by thinking which has accepted the discipline and limitation set by defined standards of thinking;—or, from a slightly variant viewpoint, what is held to be rational, however arrived at, can be justified in formal logical statements. On the other hand, the rational in a broader sense refers to the possession or exercise of reasoning powers without regard to a defined logic. In short, everything prelogical in a temporal historical sense, is not *ipso facto* irrational.

If we speak of *a* religious belief or practice as irrational, we deny that reasoning powers have been exercised in its intellectual attainment, but if we speak of a religious *system* as irrational, we can only mean that it is not rational in the narrower sense referred to above. The presence of system itself implies the past exercise of reasoning powers in some form. The isolated belief or practice, however, may well be held because of prejudice, or "fear or ignorance" in terms of the Murray general definition. Such traits imply at once that the belief or practice is held without sufficient knowledge to warrant or disprove. Ignorance states this at once, while prejudice implies partial knowledge, accompanied by an emotional unwillingness to extend and complete knowledge. Full knowledge would place the particular belief or practice in a larger nexus and its systematic interrelations would of necessity be explored. In so far as it was coherent in that larger whole it would be retained. It would then no longer be a matter of prejudice; the belief having attained its place in a system of belief, against the background of that system it would be rational.

In terms of the above considerations, I would define as superstitious a belief or practice which is isolated from a system of reference.

III

If a superstition be so defined, we can then consider an important aspect of superstition. In how far is a belief or practice superstitious in itself? Clearly, in terms of the definition, not at all: it is its isolation from a system of reference which qualifies it as a superstitious belief or practice. Thus the same belief or practice can be both superstitious and non-superstitious: It can be superstitious to one person, non-superstitious to another; non-superstitious to one person at one time, superstitious to the same person at a different time;

superstitious to some men at one time, non-superstitious to other men at the same time; non-superstitious to all men at one time, superstitious to all men at a different time.

That these statements really describe the history of superstitions I think can be made clear by analyzing their implications.

In every human society, no matter how primitive or humble, there is a complex of religious beliefs and attitudes. In how far, in any and every human society, is such a complex a system? This is an involved question. I shall approach it by anticipating with several general propositions and then explaining the significance of these in greater detail.

The religious complex of any society is more or less systematic. The religious complex of a society is not equally systematic to all its members. In a primitive society it is rare to find the whole religious complex worked out as a system by any one member.

Furthermore, the religious complexes of a number of human societies are not equally systematic; and the degree to which any individuals systematize the religious beliefs and practices of the group to which they belong may differ from one primitive society to another.

That the religious complex of any society is more or less systematic needs little proof. Just as every language has a grammar because the use of phonetic complexes to convey meaning must be ordered to be intelligible, so the religion of any human group involves forms and patterns of behavior habitual to the group. But while a language has grammar, grammar does not imply the rigorous system of logic. Whether logic from a historical point of view be merely the refinement of grammar (of a particular language) or not, even from the former point of view it must be recognized that it is a refinement, not merely grammar carried over. Colloquial usage and speech, which constitutes the bulk of language, can not enforce linguistic distinctions and categories with any greater logical rigor than the untrained popular mind is capable of. Thus the grammatical structure of a language is never *a* system in the sense that formal logic can be a system; it is usually somewhat unsystematic, and it may involve more than one potential system. In the same way, the forces at work in determining the forms of a religious complex at any one time are many: They include the historical origins of those forms, the past surviving into the present; the contemporary influences of the beliefs and forms of other human societies upon those of the society under consideration; and the internal interaction of the individuals who compose the group. Thus there are many forces at work of different weights and characters, from whose interplay it is unlikely that *a* system will re-

sult, and at the same time there is no particular force at work which makes for absolute systematization. Nevertheless it is quite impossible to find a complex of religious beliefs and practices of any society that is merely a miscellany: there are always interrelations of practice and belief; of sacrifice and concepts of sacred powers; of fetishes, amulets, etc., and the sources of revelation; of dance, song, etc., and the myth or tradition of their derivation, and so on. In the course of time such interrelation may reach very far, and the actual mechanism of worship in many societies is very complex.

In any human group individual differences are at work. Temperamental and personality differences determine the particular way of life of any individual in the primitive group as much as they do in our own society. The religious bent of the individual is just as much a factor in turning him toward the religious complex of his people as among ourselves. But in addition, in every society there are cultural forms which also determine the degree of participation of any individual in any special phase of his culture. Thus the child of a famous artist or artisan is far more likely to be in turn a skilled craftsman than other members of the community; the son of a priest becomes a priest in turn; the kin of a medicine man are the medicine-men of the next generation; the child of a famed story-teller will be found in his turn to know more stories and tell them better than his contemporaries, and so on. In part this is because of the greater opportunity to learn through close association; but in part also it is because knowledge and technique are valuable and prized possessions: they are not given freely to all, but transferred from individual to individual through a course of learning. The master requires in his apprentice a willingness to learn and some sign that the apprentice values what he is to learn, which usually takes the form of gifts or payment for the teaching. Naturally one prefers to teach those dear or close to one—one's own kin; but in most cases, if these are lacking or unworthy, more distant relatives are selected, and even non-relatives. In this way, in any generation, there is not only a general and specific division of labor, but there is a similar division of knowledge, and this is eminently true of religious or sacred knowledge. Every field worker knows that his chief reliance in unearthing the deep-lying sacred beliefs of a people, is not upon any and every member of the community, but essentially upon a very few individuals who have come in the course of time to be treasure-houses of such group knowledge—often, in a dying culture, upon one individual. It is also a matter of experience that those who know a great deal about the religious complex of their community comprehend the larger significance of what is systematic in it; while the partial knowledge of others usually means a grasp of miscellaneous parts of the whole, without integration.

This situation is reinforced by the presence of priesthoods and priestly classes in many primitive cultures; and in such cases there is a tendency for the religious knowledge of the people to become more and more esoteric. At the same time, it will be more and more systematized in the hands of the few who control it. But it is practically never that the whole complex is systematically carried out by one man alone.

Furthermore, even if an individual were to do this, it would of necessity be an individual out of touch with the exoteric thought of the community. Along with the development of an esoteric class who conceal religious knowledge from the people, goes a new development of exoteric belief. The people must, after all, participate in the overt religious practice of ceremony; they must hear much of the ritual. Even though effort is made by the esoteric class to hide meanings in veiled and symbolic language, the common people will strive to penetrate the veil. From such a source they have some inklings of the meaning of the esoteric religion, in part, of course, mistaken. Thus the belief of the exoteric classes is first of all a faint reflection of the esoteric ideology. But in the absence of orthodox interpretation, heterodox interpretation takes place, introducing often aspects of belief which are quite different from the traditional. And in all primitive communities there is always left to the exoteric classes the pattern of deriving sacred knowledge and belief from the powers directly, that is, by revelation, by vision and dream, and these experiences may influence exoteric beliefs without the intermediation of the esoteric. Thus an individual of the priestly class, even were he to systematize the religion as ordered by his class, can not integrate with it the divergent religious beliefs of the common people.

To the extent to which two societies differ in that in one culture the religious complex is in control of a priestly class, while in another the whole religion is relatively exoteric and shared by all freely, there is likely to be a difference in the degree of systematization. Specialists in religion will integrate as one phase of their specialized occupations; the common people do not to the same degree. In addition, the cultural patterns of the group themselves determine in how far the religion can be formalized. If in one culture any individual of any age can have a direct supernatural experience of his own, the content of such experiences is determined by a wider, more miscellaneous range of experience than is the case in a culture in which the pattern limits visions or supernatural experiences; and where traditional inherited religious materials are exalted by the culture far above the direct experience of any member, a still further limitation sets in. In terms of these relative

limitations, the religious complex of the group can achieve a more far-reaching systematic integration.

If now superstition be defined as a belief or practice which is isolated from a system of reference, it will be seen that in a given community a particular belief which is part of an integrated system of ideas to the priest (or as his equivalent an individual whose knowledge is sufficient to give him a grasp of what is systematic in the religious complex of his community) is not a superstition as believed in by him; while on the other hand the layman who holds the belief isolated from its reference context may be said to believe superstitiously. We have then the situation of the same belief at one and the same time superstition in one man's mind and a rational belief in the mind of another—rational, it must be clearly understood, not in the sense of rationalism or the possibility of logical proof and statement, but in the sense of orderly reasoning.

The layman who holds the belief superstitiously may apply himself to the task of learning the whole religious complex. If he finds when he has grasped the order of the whole that the particular belief integrates in that order, he no longer may be said to believe a superstition. If he finds that it does not, and still holds the belief, he may be said to retain the superstition. In the former case it will be seen that what was at one time a superstition to an individual is at a later time no longer a superstition, although the actual belief has not altered, but has been merely given its place in the setting of its system of reference.

The reverse case is as clear. As the general system of ideas of a human community alters, many beliefs will survive, isolated from their contexts. When such survivals of beliefs are held by an individual in spite of their inconsistency with the dominant system of reference, he may be said to believe in superstitions. Thus the same belief is at one time non-superstitious for an individual, at a later time superstitious.

The same points can be made with reference to groups. A practice whose meaning is clear to the priestly class will be carried out ignorantly and superstitiously by the bulk of the common people.

Finally, the general proposition that a belief may be non-superstitious to all men at one time, and superstitious to all (or most) men at a later time, follows as readily. In the course of cultural change, isolated beliefs persist while the context which formerly gave them meaning disappears so completely that it can not be recaptured. In fact, from the standpoint here taken, most superstitions of the European culture complex are of just this character: At one time they were part of a system of reference, now as isolated survivals without relation to the rationalistic or naturalistic system of reference we employ, they are superstitions.

IV

Two broad characteristics of superstition become clear.

On the one hand, a belief or practice held by an individual or group in any community, in ignorance of (or with only partial and insufficient knowledge of) *the* system of reference of the community ideology which gives it meaning and hence validity, is a superstition.[5] Two points must be made in reference to this characteristic. First, it is the dominant system of reference of the community which is called in question here; in our own culture, this would be the rationalistic or naturalistic mode of thinking, in a primitive community it would be the system of thinking which dominated their view of the world. There is thus no absolute standard: a primitive man can not be held to believe in superstitions merely because the total intellectual horizon of his culture is different in kind from our own rationalism. Secondly, and this is corollary to the first, even when in our own culture a specific belief is obviously part of a well-reasoned system of rational thinking, but is merely accepted as an isolated belief by an individual, his belief is superstitious and a superstition. This may be tempered by the consideration that full knowledge of the background is not essential where the characteristic quality of the background is grasped. Thus, Ptolemy was not superstitious, but most people who accepted his view of the universe were; and in the same way, many people who accept Copernican views to-day accept them superstitiously. But it is not essential that one trained in the meaning and character of logic and scientific method shall himself know the exact mathematical proofs of Copernican views to avoid the imputation of superstition; because it is the system of thinking of which the particular use of mathematics is a special case which is the system of reference.

On the other hand, superstitions are pre-eminently survivals. Most of the popular superstitions collected by folklorists are probably of this character, such as superstitions about numbers, black cats, phases of the moon, specific orientations of the stars. At one time these were probably not isolated beliefs but each was part of a system. With the disintegration of the system, each survives as a superstition.

Both of these characteristics are true of primitive and civilized

[5] While I refer here to the beliefs and practices of one cultural community, the spread of such beliefs and practices from individual to individual is wholly analogous to the process called "diffusion" by the ethnologist. Borrowed beliefs and practices which are the result of "diffusion" differ only in that they have spread beyond the borders of one cultural community; they have been borrowed from outside. Hence even when rational in the culture to which they are native, borrowed beliefs and practices are superstitions in the alien cultural setting into which they have been introduced until they have been integrated (if that be possible).

thinking. But in connection with primitive materials, the fashion has been to follow the vague conception of superstition I called in question to begin with, and as a result a great deal that comes to us as primitive superstition is superstition, not because we are dealing with beliefs and practices isolated from a system of reference, but because travellers and ethnologists have reported only the isolated fact and never penetrated to the system of reference which gives the belief or practice meaning and validity.

An illustration may make this clearer. From a number of American Indian groups a superstition has been reported that one must not tell coyote stories in summer, because if one does, snakes will bite the teller and may cause death. This belief is held so strongly that most collectors of myths and texts when among groups with the superstition find it almost impossible to persuade able story-tellers (who are usually orthodox and conservative natives) to tell coyote stories for recording in summer. As the summer is the usual season of field-work this often works especial hardship on field ethnologists. Among most groups who believe this, the belief is of the identical form. I myself encountered it among a number of Siouan groups before working with the Pawnee. A young Pawnee friend said to me one day on my first stay among his people: "You know you can't tell coyote stories now." (It was the height of summer.) "Yes," I said, "I know." "I'll bet you don't know why," he countered, to which I replied, "Because snakes will bite you." "How did you know that?" he exclaimed in amazement, and was surprised to hear that other tribes had the identical belief. Among the Kitsai I had long arguments with an old woman, but could never persuade her that millions of snakes were not hovering in the long grass listening to what she told me, and ready to bite the bare toes of her unmoccasined feet if she yielded to my importunity and recounted a coyote story.

Only after a detailed study of the general tenets of Pawnee religion did I come upon the reference of this belief. I can here only suggest the problem.

The Pawnees knew a great deal about the stars. Many constellations were named, and some individual stars. Among others there is a Wolf or Coyote star, and two constellations called respectively the False Snake and the True Snake—probably our Serpens and Hydra. The Heavens are a vault, and only those powers which are on the under side of this vault are visible or knowable to man. These have a one-to-one correspondence with the things upon earth. That is, for every animal, bird, insect, etc., upon earth, there is a similar power above. Naturally the exact correspondences were only carried out for a very small percentage of the possibilities, but

the implication is always that the generalization from these is true. Essentially everything upon earth is affiliated with, interrelated with, controls and is controlled by, its complement in the heavens. In this way the wolf or coyote is related to the Wolf Star, the snakes to the snake constellations. These constellations appear in the sky in Pawnee horizons as summer approaches. First comes the False Snake who is harmless, then the True Snake. It is with the appearance of the latter that coyote story-telling is forbidden, and with its disappearance in the opposite horizon months later that telling such stories becomes once more possible. There is a feeling that snake powers are in control upon earth while the True Snake constellation dominates the sky, that talking about the coyote and his accomplishments will be resented by the snake powers in control, and punished through the instrumentality of snakes upon earth. Each in its own season holds sway.

There is much more that can be said of this belief, and of the Pawnee ideology of which it is a part, but I think I have shown enough to indicate that in the minds of those Pawnees who are familiar with this complicated systematic reference of the belief about snakes biting coyote story-tellers in summer, the belief is not a superstition. It involves reasoned thinking, orderly inference in terms of the Pawnee view of nature and the universe.

At the same time, among many of the Pawnees, as in the mind of my young friend who was astonished that I knew the answer, it is a superstition, because they are unfamiliar with the ideology behind it, and many do not know such an ideology exists. Also, I believe that among a number of other tribes who hold this belief, it is fully a superstition because the system of reference is quite absent; although in such cases it may well be that careful study would uncover quite different backgrounds with which it has been integrated.

V

Throughout this discussion I have taken the position that a distinction can be drawn between primitive thinking and our own without calling primitive thinking irrational in the broader sense. That is, primitive man thinks and reasons, he uses analogies and associations; he identifies and discriminates. Thus if four colors are associated with the four semi-cardinal directions, and also four animals associated with those same directions, he will attempt, just as we would, to associate the respective color symbols with the respective animals. If a particular rite, such as the orientation in which pipes are lit in ceremonies, has no known significance among contemporaries, he will reason out its probable meaning in terms of the motions and actions gone through by the smoker and the known orientations of the powers to which they must refer.

To describe and illustrate the detailed characteristics of primitive thinking and the primitive mind is outside the scope of the present discussion. But from the standpoint here adopted the essential difference between primitive rational thinking and civilized rational thinking is that in the latter case a conscious attempt is made to follow rules of procedure already laid down. In other words our rationalism involves thinking which has already considered itself and established canons of procedure. In addition, our rational thinking is for the most part applied to the consideration of a defined nature—a three-dimensional realm in which the interplay of events is of a cause and effect character. By contrast, in the primitive case, formalized logic is absent, and the universe of discourse is the world of crude experience without differentiation of mind and nature—in the sense of Santayana that not only primary and secondary qualities inhere in things, but also tertiary.

From an ethnological standpoint the development of our logical rationalism is an historical event in a particular stream of culture. To deny the presence of human reasoning—uncodified though it be—to cultures from which rationalism is absent is to assert the identity of reasoning and logic. A broader view is that logic is a special controlled ordering of the processes of reasoning, which can and do exist both before logic, and in its absence.

To avoid misunderstanding I should state that I am using logic herein as a term for formalized and systematized rules of thought procedure without regard to what type or system of logic is in question. I do not think the points made are invalidated whatever specific "logic" be brought to mind, because the distinction here is between all logics as conscious products of the human intellect and the absence of the consciousness that the control of human thinking is a problem. In both cases, however, human thinking goes on.

Where human thinking goes on and constructs a world view in terms of all available suggestions of culture and experience, it is a confusion of thought to class such world views as "unreasonable." They are philosophies of their own kind, and judgments of their intellectual validity must be based upon a consideration of the internal aspects of the system, of its rationale and order from the standpoint of the believer. Any belief which is held as part of such a system is not a superstition.

ALEXANDER LESSER.

NEW YORK CITY.

THE CONCEPTION OF LIFE AS ENTELECHY

THE conception of life as entelechy seems to be typical of a rather large class of philosophical illusions. The present writer is of the opinion that this is a result of the tendency to mistake surrounding objects which are conspicuous in the perspective of the observer for factors to which a particular living process responds. In a recent article,[1] Sir Oliver Lodge tries to make out a case for the conception of life as entelechy or form which guides and directs physical energy, but is not energy itself, and which determines, in some mysterious way, the structure or pattern of an organism.

The ontogenetic history of an organism, in which cells descend from a common parent cell, differentiate in structure and function, and finally reach a condition of equilibrium in the adult structure, is simply labelled life and left in complete mystery by Sir Oliver Lodge and Professor MacBride from whose works he quotes. No one, of course, would presume to *know* how this class of phenomena is possible; but as long as some explanation is *conceivable,* it might be more fruitful for research to entertain it than to poetize over unfathomable mysteries.

An approach to this problem of entelechy is suggested by certain general observations concerning organic behavior.

In the first place, *organisms behave differently under different environmental conditions.* They even sometimes develop differently, assume entirely different functions, and become, in a fundamental sense, different organisms when they are allowed to develop in different environments. Development can be arrested at certain points, in some cases, and in others can be carried on farther than natural conditions carry it. It is also known that such changes impressed upon the organism by the environment are sometimes passed on to its descendants, as is witnessed by the experiments in which mutations are produced by applying x-rays.

The second important consideration is that *organisms can induce a change in their environments.* This can occur in any number of ways; but perhaps chemical and electrical catalysis suggest the most obvious possibilities.

The third point to which I wish to direct attention is *that a definite series of changes can occur in the environment as a direct result of the increasing number of organisms and the new arrangements and differentiations which the various number combinations effect.*

Let us bring these three observations simultaneously to bear on the conception of life as *form* for *matter.* A broad analogy, which,

[1] *Hibbert Journal,* April, 1931.

if it does not explain, may yet serve to point out the general direction of our argument, is found in the life of human beings and of social insects. One human being alone, in his bare relation to physical nature, does not behave as he does in the presence of a companion. There are certain definite patterns of behavior which are called out by the presence of the other one. Similarly, three, four, or five individuals set up corresponding social patterns which determine, in broad outline, the behavior of each. Differentiation of labor or function occurs at different stages of complexity as the number increases. Again, the analogy between the organization of the social insects and the multicellular organisms has been pointed out often. In the case of the insect community, the structure is probably fixed by the conditions which nurture the egg to maturity, since reproduction does not occur in the outlying *organs* as it does in ontogeny.

Assuming certain broad limitations of physical environment which are relatively unchanging, a stage is reached in the growth of such societies which is roughly analogous to organic maturity. Human societies do not always reach a stage which could be called maturity; significant changes in the environment, besides those produced by the increasing number of members in the group, are produced either by the growth of other societies or by radical changes in the physical environment. But under conditions accidentally protected from outside influence, societies have reached stages which can appropriately be called maturity. Such patterns are not, however, entirely independent of the individual type; for example, a society of Hottentots can not be expected to develop according to the same general pattern, under particular environmental conditions, as a stronger and larger type. The Hottentots might be forced to resort to cunning and to cultivate peace where others would resort to force and become warlike in their habits. This analogy suggests a possible approach to the inter-cellular organization and differentiation.

In order to carry this analogy over into the explanation of the conception of life as *form* or *entelechy,* let us assume the presence of a single cell, having a certain degree of sensitivity to its environment and also the capacity to produce, or to contribute to the production of, certain increments of *change* in the environment to which it is sensitive. This assumption justifies the expectation that a certain rather definite series of events will take place.

Incidentally, it might be argued that the same problem of the relation between form and matter still confronts us even if we succeed in dismissing it from ontogenetic evolution. There may be some truth in this; but if the phenomena which so much arouse the

interest of the human mind in entelechies can be reduced to terms of the behavior of a single cell, a start will have been made in the direction of clearing up the mystery out of which the problem actually arises. It is not necessary, either, to grant that the explanation will not apply in some measure to the growth and development of an individual cell. Suppose, by way of illustrating this, that a given cell is able to make the response, P, to environment, E, and the response, P', to environment, $E—e$. It is important to emphasize the fact that there are points at which a slight quantitative change in the environment might call out a qualitatively different response in the cell. It is conceivable that the increment of environmental change, e, can be produced by the metabolic processes of the cell itself; and, if we postulate a series of such changes produced by the cell on its own environment and let the number approach infinity, we have an *evened out* process of change which suggests growth in a cell. But if it so happens that the tendency of the cell, in relation to environment E, is to retain its unity, while in environment $E—e$ it reacts by separating into two processes, each of which *happens* to be a duplication of a previous stage of its development, we have a simplified representation of the phenomenon of reproduction as brought about by changes in the environment which the cell's own life processes produce. It seems, however, to be rather remarkable that a complete cycle of changes could occur in the process of protoplasmic anabolism which would include reproduction. Let us consider this from the standpoint of chance alone. There are roughly three different types of events occurring in nature: Those which change their patterns continually; those which recur to the same pattern at intervals; and those which recur to the same pattern at intervals with a *duplicate copy*. Once the second and third cycle is established, there is no reason why it should not repeat itself indefinitely, or at least tend to do that. It is obvious that the third type is highly improbable as compared with the first. Mere chance tremendously favors the first type of event over the second, and the third seems almost wholly incredible as a product of chance when we consider how abundantly it occurs in nature. However, *chance* seems to be a more promising explanation when we take into account the tendency of the second and third types, and especially of the third, to impose perduring patterns upon nature. If we wished to honor Heraclitus, we might imagine a condition at the beginning in which the first type of event prevails, followed by a gradually increasing predominance of the second, and, finally, of the third type.

The first thing to be considered in connection with ontogenetic evolution is the change of the cell's behavior in response to changes

which it produces in its own environment. If the cell is sensitive to its own unaided effects on the environment, it changes its pattern of activity, and perhaps we can say that it *grows,* in accordance with the account given above. This process could, for one reason or another, reach a stage of equilibrium. For example, if we consider the single possibility of the chemical changes produced on the environment by the activity of the cell, the process of absorption by surrounding solvents could very well strike a balance with the production of chemicals. In such a case, we would have a one-celled organism which simply maintains its life process without either growing or reproducing. But suppose that the accumulation of chemicals is sufficient to bring about the phenomenon of reproduction as described above. Then a different situation is produced by the presence of the second cell, provided, of course, that the two cells *remain near enough together* to combine their effects on the environment. It is not surprising that it is the usual thing in nature for two sister cells simply to drift apart and each repeat the process of reproduction quite independently of the other; but the alternative to this was for two cells to *adhere* after division, and then a new environmental possibility was established. Whether they will respond this way or not depends upon the sensitivity of the cells; but the difference between cells which adhere and remain in juxtaposition and those which separate may not necessarily be great. If *identical twins* develop from one cell, as is believed to be the case, that phenomenon is strong evidence that a very slight difference can determine this very important step in the evolutionary process. Sister cells might, occasionally, owing to some slight environmental disturbance, separate and produce a pair of organisms when the usual thing is to produce only one. In the case of some animals, the process is even carried a step farther. Who knows but that under conditions yet unknown, single-celled organisms might be induced to produce closely related communities, or even multicellular organisms?

If reproduction of cells goes on, and they do adhere, it is not necessarily true that a significant change, one to which the cells are sensitive, will occur with the addition of each new cell. It might be the case that several new cells would have to be added to the group before an environmental change would develop of a sufficiently marked character to call out new processes in the cells. When this stage is reached, however, provided that it is, why is it that all the cells in the community, being sisters and alike, do not simply change their behavior simultaneously without differentiation? Presumably, because the *position* of the individual cell in the communal pattern, or of a group of cells in juxtaposition,

makes an environmental difference. Adhering to the chemical conception of environmental influence, for simplicity only, and not because it is entertained as a solitary possibility, we can imagine that the outer layers of cells are bathed in a less concentrated solution than the ones which happen to be located in the central regions. The relative position with respect to gravity might make a difference in the chemical constituency of the different regions. It is recognized that this is only a sort of an analogy, based on imaginary fact; but it suggests the possibility of a *series* of changes which might be *recapitulated in each ontogenetic history.* Recapitulation would be carried out to the highest degree, of course, by cells most alike in their sensitivity to environmental changes, and the degree of recapitulation would correspond exactly to the similarity of cells compared. Identical twins would follow the same developmental patterns except perhaps that in the last stages some accidental disturbances might cause them to take different routes of development. Brothers and sisters would be less alike; that is, they would have fewer of what might be called the secondary lines of development in common. Similarly, there would be increasing differences between members of the same species, family, order, class, and phyllum. At the base of this hierarchy, only the elemental lines of development remain common, such as exist between all backboned animals, for example. The similarities and differences in structure between different plants and animals suggest as much.

Differentiation and specialization itself might account for the more marked changes in the immediate environment of either all or some of the cells in the group. The growth of an organ, such as a gland with its alleged hormones, would be a striking example.

This approach to the problem explains some of the phenomena which Sir Oliver Lodge takes to be complete mysteries. Take this phenomenon, for example: If the leg of a newt is cut off, the newt is soon able to grow a new one. Now what is the explanation of this in terms of our theory? Simply this: The outlying cells of the stump are able to establish a sphere of influence sufficiently typical of their locality to cause their descendants to grow into the place and carry on the function of the missing cells. This continues, presumably, until a new member is completely replaced. But in wounds, sometimes, the outlying cells are not able to reproduce the typical growing condition for that locality, and *scar tissue* develops in the place of the regular tissue. There is no necessary mystery about this, since the determining environmental influence is probably decidedly local.

There are many instances of such restorative processes in nature.

In a society of men or bees, it is not only true that certain individuals are reproduced to take the place of those who die or are destroyed; but in many cases, a complete function can be replaced. New workers can be reproduced in a beehive when they are needed. A new queen can be nourished and developed. If a given area in a forest is cleared, the climatic conditions and the surrounding vegetation will, in time, reproduce pretty much the original structure.

Let us consider the second example which Sir Oliver mentions. The tail bud of one newt is grafted into the body of another near its fore leg. Now the mystery is only deepened here by the assumption that the "cytoplasm" of the tail "was organized" to produce an adult tail. The weakness of this assumption is revealed in the fact that an adult tail is not produced. It is just as we would expect that the cells, transferred to the new locality under conditions which make it possible for them to live, would come under the influence of local conditions and develop according to the pattern which the locality itself renders possible. It would seem that "When in Rome do as *Rome* does" is a bit of cellular wisdom.

It is not at all surprising that such a transplanting process is possible only in a few interesting instances. As specialization takes place, the cells evolve away from the parent type until they become so unlike each other that finally the environment which sustains one will not sustain another. We do not expect, for example, to be successful in grafting a bone cell into a cleft in the skin or muscle. It is interesting to observe that this type of evolution can not take place according to the principle of selection. Any *change* brought about in the cell in the direction of specialized function and structure has to be *induced* by the immediate conditions. It is conceivable that both principles operate in nature. From this standpoint, the process of cellular evolution in ontogenetic history can be recapitulated by a second cell of the same type which starts out where the first one started; because, *granting the same start,* one condition follows inevitably out of the preceding conditions, and each condition finds a unique place in temporal pattern. The whole *spatio-temporal* pattern of conditions is the *entelechy* of the organism. The tendency, from this standpoint, is to consider each ontogenetic history as a separate process of evolution impressed upon the plastic cells by this determinate pattern of conditions.

What is it, then, that the organism inherits from its parents which causes it to develop according to the family pattern? Such a pattern of environmental conditions evidently exists only in relation to a cell of a very definite sensitivity. We have the answer of the geneticists to this question. They say that certain *character*

determiners must be in some way telescoped in the cell, and it is their problem to find these. From our standpoint, it would simply be a degree of sensitivity plus certain capacities to produce changes in the environment. The fact that the cell seems to inherit certain definite possibilities to be realized at particular stages in ontogenetic development may result from the illusion already referred to in the form of the assumption that the cell is "keyed up" or "organized" to produce a certain type of adult organism. This may be the vestige of a theological concept despite the avowed naturalism of most geneticists, because *special creation* is a theological concept. Most thinkers who deal with this problem seem to assume that the whole pattern of the adult organism has to exist somewhere in the beginning, either as a spiritual form, an overhanging shadow of the adult being, or in the *organization* of the parent cell. The gene theory itself seems to be loaded with this prejudice in the latter form. While the geneticists usually take no conscious stock in the assumption of creation, they nevertheless seem to be always looking for something which could be posited only by a *special creation.* This may account for the fact that they sometimes unwittingly beg the question of creation.

The fact that a cell responds typically to a great number of environmental conditions is really no more remarkable than the fact that it responds typically to one given condition, as long as we do not lose sight of the environmental factor. When we forget the environment, we are forced to telescope the pattern of the adult organism in the original cell. Cells would not necessarily have to possess exactly the same *degree* of sensitivity in order to follow each other through certain ontogenetic patterns. It is not astonishing that a given stone falls from the top of a tower with a certain accelerated velocity, sinks in water, and floats in mercury. We are not in the habit of thinking of these capacities as patterns of behavior which the stone somehow has tied up in itself independently of conditions. In this case, it really possesses mass which works differently under different environmental conditions. It is also a relevant fact that the property of mass might vary considerably without changing the *response pattern* of the stone in any of the above-named situations. But there are limits beyond which this property can not change without making an important difference in some part of the pattern. For example, a piece of gold might be substituted for the stone and at least one response would be changed. The gold would fall from the tower with the same accelerated velocity, sink in water, and *sink* in mercury. There seems to be some plausibility in the assumption that differences and similarities somewhat analogous to these might account

for differences and similarities such as are found in comparisons of ontogenetic histories. Cells somewhat alike in sensitivity might find their way through similar mazes of conditions until a stage is reached which takes account of their differences and divides their ways. A so-called *mutation* might be a very slight difference of this kind which would make it only a special case of such differences as occur between the members of different species, genera, etc., in a more marked degree. That is, it might be simply a stable difference, induced by some accidental environmental condition, and left at the mercy of natural selection.

The evidence that such *induced* changes can occur in the cells of a mature organism is not entirely wanting. We have, for example, callous tissue, scar tissue, and perhaps cancer tissue as examples of cells which have taken on more or less permanent characters as a result of environmental influence. Cancer is probably a good example of how a wounded or detached cell can assume and maintain a different line of development from that of the parent cell. If such *induced mutations* can occur in cellular evolution, and in the body of an adult organism under special conditions, is there not some reason to suppose that they might also occur for a similar reason in the germ plasm? This suggests the Lamarckian hypothesis as applying to the *acquired traits* of the individual cells, *in relation to their own immediate environmental conditions,* rather than to the multicellular organism in relation to the environment to which it responds *as a whole.* Regarded from this standpoint, it is not in the least astonishing that the organism's *acquired habits of living* do not have anything to do with inheritance. The chemistry of the cell's life is obviously relatively independent of these habits. It is possible that a radical change in the food habits of the organism, or something else which has some definite connection with the chemistry of the cells' life, might induce a permanent change. However, if a permanent change in the germ plasm were so induced, it would obviously be just a change which would have no connection with the adaptation involved except such as could be established by chance and selection.

This paper is not written with the view of giving a true picture of what actually happens. That is the prerogative of the experimental scientist. Perhaps it can be more appropriately posed as a sort of a *parable* put forth for the purpose of directing attention to the particular cell's interaction with its own immediate environment, and also to the *serial nature* of the changes in this environment, as the *causes* of ontogenetic evolution. This suggests that complexities which are usually attributed to the structure of the germ plasm really qualifies the environment, and that the determinant differences

between parent cells are relatively simple as compared with the differences between the corresponding adult organisms.[2]

J. A. LYNCH.

THE RICE INSTITUTE,
HOUSTON, TEXAS.

BOOK REVIEWS

The Logic of Discovery. R. D. CARMICHAEL. Chicago: Open Court Publishing Co. 1930. Pp. ix + 280.

When one of America's outstanding mathematicians and a past president of the Mathematical Association of America writes a book on the theory of logic, it deserves careful consideration. Logic, the most fundamental discipline of philosophy, has always taken its ideals from contemporary science, and mathematics is to-day the most advanced of sciences.

In spite of its misleading title, the book is a collection of essays on various themes dealing with theory of logic. Five out of the nine essays are reprinted from various journals. The first essay gives the book its title. Professor Carmichael concludes that all developed logics are logics of demonstration, and that there is no such thing as a logic of discovery, but only different methods of discovery, each restricted to a separate field. The most interesting of these is the use of an ideal or a metaphysical principle to discover a scientific hypothesis that is independently verified. The second essay shows that a developed science takes the form of a "postulate system" (what has elsewhere been called a "rational induction"), and pleads for the more conscious use of postulate systems in giving deductive form to exact thought. The third essay discusses the general logical characteristic of deductive postulational systems, illustrating them by a miniature mathematical system. The fourth essay is a brief historical résumé of the development of the sciences, showing that the more developed a science, the more it assumes a postulational form. In accordance with this criterion, the physical sciences, especially celestial mechanics, have attained the greatest development, while the biological and psychological sciences have not yet made much progress. The fifth essay deals with various topics: Professor

[2] The gradational theory of Professor Child, the University of Chicago, evidently has some points in common with this. It seems to me, however, that his theory is a sort of compromise between the entelechy theory and an out and out physical explanation. That is, he seems to posit little bits of entelechy, in varying amounts, with each cell or group of cells. If he would abandon the analogies which he borrows from social communication and social dominance, much of this vague, long-distance influencing would probably vanish in a fog of mystery.

Carmichael argues that novelties do arise in exact thinking, so that mathematics is not a mere tautology; the essence of exact thought is the "doctrinal function," hence all exact sciences should be put into that form; the author seeks but does not find proof for the binding character of deductive necessity. The sixth essay arrives at an understanding of one of the most fundamental notions in modern mathematics and one of the most important recent logical discoveries —the doctrinal function. It is defined as a "body of statements which is made up solely of a set of consistent postulates about elements or objects not explicitly defined and the logical consequences which flow from them" (p. 151f). The seventh essay is a discussion of topics connected with inductive logic. Professor Carmichael traces the development of atomic theory as an illustration of the way that hypotheses pass into a state of security in science; he combats the empiricist conception that theories are only illusions, whereas only simple and brutal facts are true; he dips into metaphysics in asserting that "natural science should be considered a construct of the mind rather than a paraphrase of nature wrought out by the mind" (p. 191), although he later admits that "facts exercise a certain dominating effect over theory" (p. 197). He ends with the view that "there is no such thing as a rigidly demonstrated theory" (p. 185) and "there is no ultimate explanation possible by the methods of science" (p. 198), although he does not see that, if ultimate demonstration is impossible, and "the certainty of mathematics . . . is not absolute, but relative" (p. 270), no one theory can have any logical preference over any other, since even all probabilities become indefinitely small, so that there can be no security in science, and modern science and mathematics can claim no more knowledge than the ancients had! The eighth essay resumes the problem of discovery. The author summarizes various studies of the way that discoveries have been made, especially in mathematics; he discusses the place of fact and mind in natural science, concluding that both are necessary and neither sufficient by itself; and he shows that Rignano's theory of reasoning is inadequate. The ninth and last essay is an attractive summary of the human values to be found in mathematics.

The book is written clearly and untechnically. One of its great merits is that, while it deals with fundamental mathematical problems, it can be understood by one who has only a very elementary knowledge of mathematics. The typographical make-up is good. One is irritated, however, to be presented with many quotations without, in most cases, being informed whence they are taken. The manner of writing the essays has led to some redundancy; the reader is annoyed to find the same point repeated in different essays. Except for the later essays, they are not well concatenated.

One is disappointed, too, to find Professor Carmichael remarking, "The syllogism is not the central elementary process in exact reasoning, but rather is one only—and that not the most important" (p. 127), when it has been shown that the syllogism, in a generalized form, is fundamental to mathematical and all deductive reasoning, and constitutes the essence of rigorous demonstration.[1]

If a philosopher may be permitted to criticize mathematical terminology, the phrase, "undefined term," which is declared to be an essential part of the doctrinal function, should be challenged. Professor Carmichael recognizes that such terms "are not unrestricted in meaning" (p. 48), and he says, "To define the range of use of fundamental terms not otherwise strictly delimited in meaning . . . is precisely one of the important functions of the system of postulates in a mathematical science" (p. 86). In fact, in a properly stated doctrinal function, these so-called "undefined terms" are *completely* defined for the purposes of that doctrinal function, as a little inspection will show. They, however, need further definition for the purpose of creating an interpretation or exemplification of the doctrinal function. To call them "undefined" is a misnomer. Plato rightly says, "False words are not only evil in themselves, but they infect the soul with evil"; labelling such completely defined terms "undefined" leads to inaccurate thinking and philosophical misunderstanding.

Such criticisms do not affect most of the book's thought, which is a readable exposition of the recent developments in mathematical science important for philosophy. Professor Carmichael states the underlying purpose of the book thus: "We can nowhere study the processes of thought . . . more effectively than in that domain where it has been most successful. . . . It is a corollary that mathematics . . . will yield to us some of our most definite information as to the essential elements in the methods of clear and accurate thinking" (p. 254). Such an attempt can not but be valuable to the thoughtful philosopher and logician.

HOMER H. DUBS.

MARSHALL COLLEGE.

New Views of Evolution. GEORGE PERRIGO CONGER. New York: The Macmillan Company. 1929. ix + 235 pp.

Evolution and Man. HERVEY WOODBURN SHIMER. Boston: Ginn and Company. 1929. vi + 273 pp.

Of all the intellectual disciplines philosophy has done least, perhaps, to render its teachings accessible to the masses, although its practical values are said to compare favorably with those of other

[1] "The Nature of Rigorous Demonstration," in the *Monist*, Vol. XL, pp. 94ff; and *Rational Induction*, by H. H. Dubs, ch. VI.

branches of learning. Philosophy has not even evolved a technology for the application of its results nor a profession of practising philosophers to assist the layman in living his life by philosophy's light. That should not be a chimerical enterprise, considering the extensive technological applications of sciences such as psychology and sociology that are no closer to life's vital issues.

The Philosophy for the Layman Series is evidently designed to help repair these deficiencies, by making philosophic teachings accessible, through the medium of the printed page, to the general reader. Dr. Conger's volume, a contribution to the series, represents an attempt to do this for the theory of evolution, deemed to be a phase of philosophic as well as of scientific thought. Quite appropriately, therefore, the book is broad in scope, and places the emphasis on the larger aspects of the subject. Following a definition of evolution in both positive and negative terms are chapters on the evolution of matter, of living organisms, of nervous systems and minds, of cultures, and two concluding chapters presenting some general philosophies of evolution, and an estimate of evolutionism.

Considering the audience addressed, the exposition of these topics is a workmanlike performance. As one would expect of so comprehensive a study, however, it is of uneven quality. Particularly good is the discussion of minds and nervous systems, in which the fundamental principles of neuropsychology—twelve in number, according to the author—are expounded. Excellent, too, is the final chapter, "An Estimate of Evolutionism," in which some of the really serious criticisms of evolutionism are considered. But these parts of the discussion may be rather difficult for the average layman. The weakest chapter of the book is that on the evolution of culture. Dealing, in twenty-two pages, with evolution in economics, eugenics and euthenics, ethics, politics, art, religion, and history at large, it is too general to be of much value, even to a layman, whereas it should have been possible, with the excellent expositions now available, to have presented an informing elementary description of cultural phenomena and cultural change. Finally, the basic questions at issue between mechanists and vitalists are only partially indicated in the rather elaborate discussion of that subject.

As is quite proper in a treatise of this character, Dr. Conger is cautious about committing himself to any of the positions involved in current controversies. He concedes that evolutionism is not necessarily opposed to all forms of creationism, especially "initial creationism," though he evidently inclines toward a radical evolutionism relying wholly on "inherent causes" for explanatory

purposes. This is in line with an apparent preference for unrestricted as against restricted evolutionism, which holds that there has been evolution "between" as well as within the realms of matter, life, and mind; for the principle of creative synthesis as a theory of how this evolution has occurred; and for a monistic conception of psychophysical relationships, that "a mind is a nervous system at work and that nervous system and mind are related as structure and process." The great argument for evolutionism, according to the author, is derived from the principle of parsimony. Inherent causes adequately account for the observed facts, making resort to intervening causes unnecessary. But decisive proof is not possible, since the evidence does not in itself compel belief, and inference as a supplement to the direct evidence can not yield absolutely final conclusions. Consideration of the same principle apparently inclines the author in favor of unrestricted evolutionism and other general positions indicated above.

Professor Shimer presents "the facts and theories of evolution as a basis on which to discuss man in particular,—his ancestry, his present inherited body and impulses, and how these condition his reactions to his environment." He discusses evolution from the inorganic to the organic, the evidences of organic evolution, the causal factors of evolution, and the evolution of man. The exposition of these subjects is of an elementary character, and avoids controversial issues. It abounds in concrete factual material, lucidly and concisely presented. The book, by virtue of these qualities, should prove an excellent introductory text.

It has serious faults, however, though these should not materially impair its value as a text in the hands of a competent teacher. The author assumes, as is his right, that, with the development of life, a new type of energy was superimposed on inorganic energies, and that this energy later developed chemical messengers and nervous systems as coördinating agents; but he fails to point out that there are many positions alternative to this one. Similarly, genetic relationships among the various classes of organisms, including the Hominidæ, are traced with a confidence that more critical biologists are far from feeling. Again, the author arbitrarily assumes that four great groups of instinctive impulses—self-preservative, reproductive, parental, and gregarious—constitute the basic foundations of behavior in the higher animals, including man. He is apparently unacquainted with the criticism and revision to which the concept of instincts is now being subjected. The discussion of man's social evolution is equally faulty, being very general in character and without benefit of studies in cultural anthropology on which a competent treatment of the subject must rest.

But Professor Shimer has many suggestive things to say on these subjects. And, despite the faults, the simplicity of the treatment and the wealth of illustrative material make the book a valuable teaching instrument, if used with discrimination.

SEBA ELDRIDGE.

UNIVERSITY OF KANSAS.

La Pensée de Jean-Jacques Rousseau. ALBERT SCHINZ. Northampton, Mass.: Smith College. 1929. 2 vols. Pp. viii + 521.

Professor Schinz's study is a scholarly investigation of Rousseau's principal works. From this examination the conclusion is drawn that the "real Rousseau is fundamentally rational in his ethics, his politics, and his theology" (p. 511). The study is divided into two parts. In Part I, the author weighs the importance of the social and psychological conditions that obtained in Rousseau's time. The two moral tendencies "which strove for empire in the eighteenth century" were the romantic—fostered by the social conditions—and the calvinistic—handed down from the past. These tendencies, in modified form, were mirrored in Rousseau's own soul. He never succeeded in escaping the conflict between these. The romantic aspect of Rousseau's work was and is appreciated and the other aspect ignored.

In Part II, Professor Schinz traces the fluctuation and development of Rousseau's thought throughout those works which are most important from a philosophical point of view. He never evolved a coherent philosophy. His thought always alternated between the romantic and rationalistic attitudes, but the latter prevailed more and more. He was interested chiefly in a practical philosophy. He sought a formula that would conciliate man's aspiration for terrestrial happiness with the "necessary disciplining of human nature to realize this happiness" (p. 506). The author concludes that Rousseau will remain the most living of the writers of the past because his thought concerning the problem of human destiny never reached definitive form—it is only suggestive and consequently each student of Rousseau can have the sensation of becoming a collaborator in solving the problem.

In spite of the excellence of this study, certain inadequacies appear in the treatment of the philosophical problems involved. Professor Schinz's initial discussion of virtue is too sketchy. He attempts to present the essence of the Greek notions of the virtues in a brief statement of what he labels *vertu-sagesse*. The Christian notions are given a similarly abbreviated statement and the resulting conception is labelled *vertu-renoncement*.

Professor Schinz attributes to Rousseau a rationalistic theory of

the conscience. At risk of being regarded "a slave of the text," one can not help recalling Rousseau's statement that Julie had but to follow the dictates of her heart in order to do right. Many other passages might be cited that indicate that Rousseau was mainly an emotional intuitionist in his theory of the conscience. Professor Schinz himself uses the terms *ce sentiment moral* in presenting Rousseau's theory. He believes that his treatment of Rousseau's theory is in accord, in the main, with that of Höffding, though Höffding regards Rousseau as an emotional intuitionist. (*Cf.* p. 241.)

Professor Schinz's notion of liberty is naïve. It is the notion that to be free one must be able to obey the whim of the moment. Wisdom is regarded as enslaving man (*Cf.* p. 402). Furthermore, in organized society man loses his freedom. (*Cf.* especially pp. 391–393 and the statement: "If I were really free, I would work only for myself.") This inability to comprehend the nature of freedom is based upon a misconception of man's nature. This misconception is also evidenced in what is implied as constituting *bonheur*. Professor Schinz's conception of *bonheur* is hedonistic.

Finally, one welcomes the emphasis on the rationalism in Rousseau. But is not the *real* Rousseau also romantic? The author indicates freely Rousseau's romanticism, then why conclude that the *real* Rousseau is rationalistic? In many passages one feels as if the author were straining to attribute a meaning to Rousseau's thought of which Rousseau gives no implication. (*Cf.* pp. 147, 180, 190, 224, 248, 489.) One ends the study with the feeling that Professor Schinz is not sufficiently beyond the influence of Rousseau to appreciate certain weaknesses of the latter in dealing with philosophical problems. One is more thoroughly convinced of Rousseau's predominant romanticism when one has followed through many citations whose import the author has not recognized.

MARJORIE S. HARRIS.

RANDOLPH-MACON WOMAN'S COLLEGE.

JOURNALS AND NEW BOOKS

PHILOSOPHY. Vol. VI, No. 24. Representation: *J. L. Stocks.* Interaction and Cosmic Structure: *J. E. Boodin.* Definition of Value: *H. Osborne.* Spinozistic Substance and the Upanishadic Self: *M. S. Modak.* Cause and Ground: *F. E. England.* Reality in History: *Hilda D. Oakley.* The Constant and the Contingent in Human Thought and Life: *A. E. Garvie.*

Carritt, E. F., editor. Philosophies of Beauty. From Socrates to Robert Bridges. Being the Sources of Aesthetic Theory. With

a foreword by D. W. Prall. New York and London: Oxford University Press. 1931. xxix + 334 pp. $4.25.

Church, R. W.: A Study in the Philosophy of Malebranche. London: George Allen & Unwin, Ltd. 1931. 286 pp. 10s. 6d.

Dawson, Miles Meander: The Ethical Religion of Zoroaster. New York: Macmillan Co. 1931. xxviii.+ 271 pp. $2.25.

NOTES AND NEWS

The program of the Philosophical Union of the University of California at Los Angeles for the year 1931–1932, under the general subject "Philosophy and Culture," is as follows:

October 28. PHILOSOPHY AND MUSIC.
Finale from the Symphonie Pathétique: *Tschaikowsky.*
The Divine Tragedy: *John Elof Boodin.*
Choral in B. Minor: *César Franck.*

November 18. PHILOSOPHY AND POLITICS.
Plato's Philosopher-Statesman: *B. A. G. Fuller.*
The Want of a Philosopher-Statesman: *John Beardsley.*
Discussion: *Charles G. Haines.*

January 13. PHILOSOPHY AND ART.
Art and Life: *Frank Morley Fletcher.*
Art as Interpretation: *Kate Gordon.*
An Artist's Philosophy: *David Edstrom.*

February 10. PHILOSOPHY AND SCIENCE.
Models of the Physical Universe: *Richard Tolman.*
The Origin of Life: *Max S. Dunn.*
Discussion: *Hugh Miller.*

March —. PHILOSOPHY AND ECONOMICS.
Our Economic Maladies: An Ethical Evaluation: *Walter G. Everett.*
Discussion: *James H. Tufts, Gordon S. Watkins.*

April 13. PHILOSOPHY AND POETRY.
Lucretius, Philosopher-Poet: *Robert Seymour Conway.*
The Poetic Function of Philosophy: *Hartley B. Alexander.*
Discussion: *Donald S. Williams.*

May 11. PHILOSOPHY AND PRACTICE.
Theory and Practice: *F. C. S. Schiller.*
Morality and Practice: *Donald S. Piatt.*
Education and Practice: *Ernest Carroll Moore.*

We regret to announce the death of Dr. L. Pearl Boggs on August 15, 1931, at Pasadena, California.